

Vickrey Auction for k Items

Bidder	Bid
1	\$8
2	\$5
3	\$2
4	\$7
5	\$9
6	\$4
7	\$5
8	\$6
9	\$2
10	\$4

k = 1; Bidder 5 wins and pays \$8

k = 3; Bidders 1, 4, and 5 win and each pays \$6

Fig. 1

001260" 6E99960

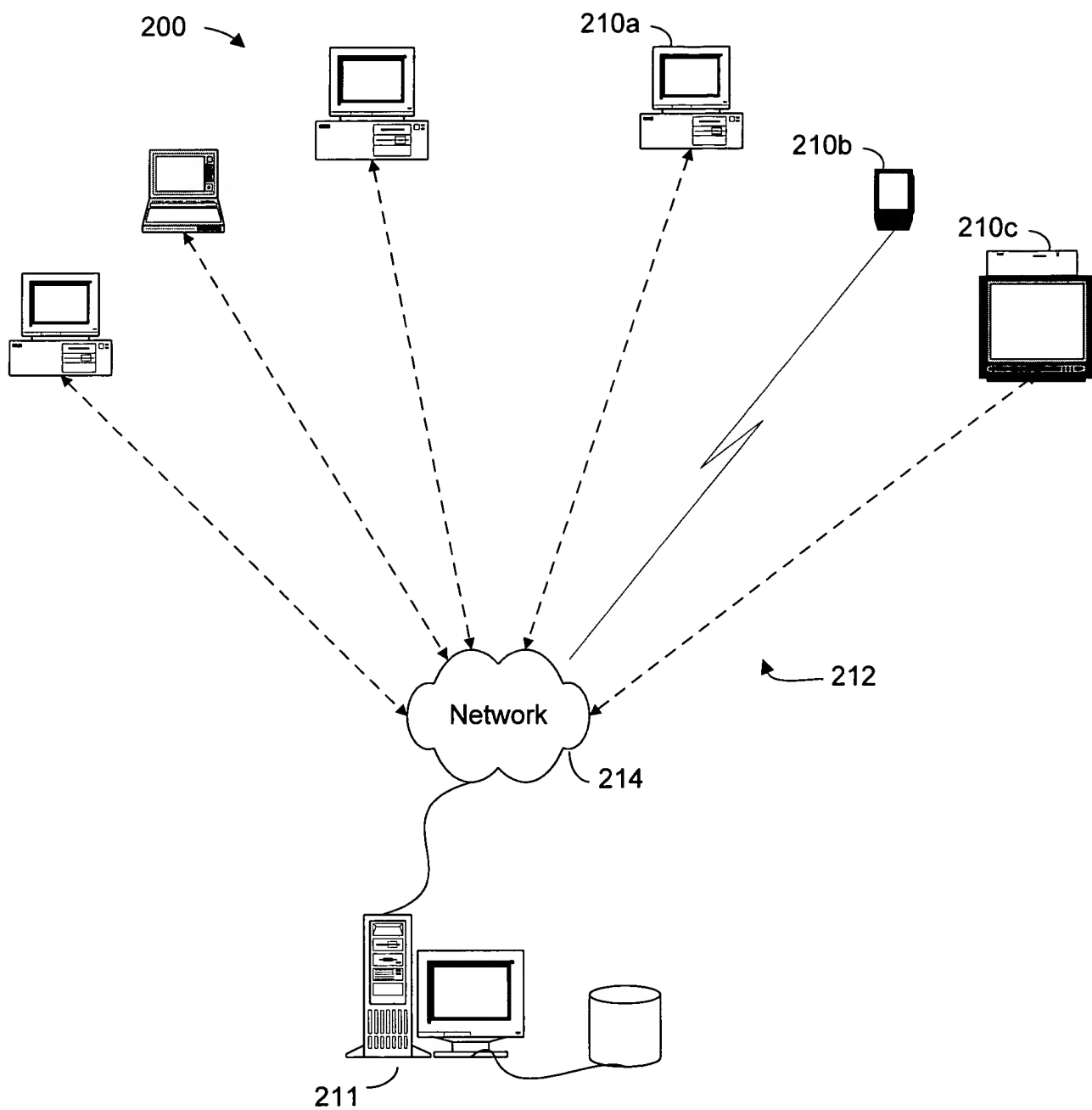


Fig. 2A

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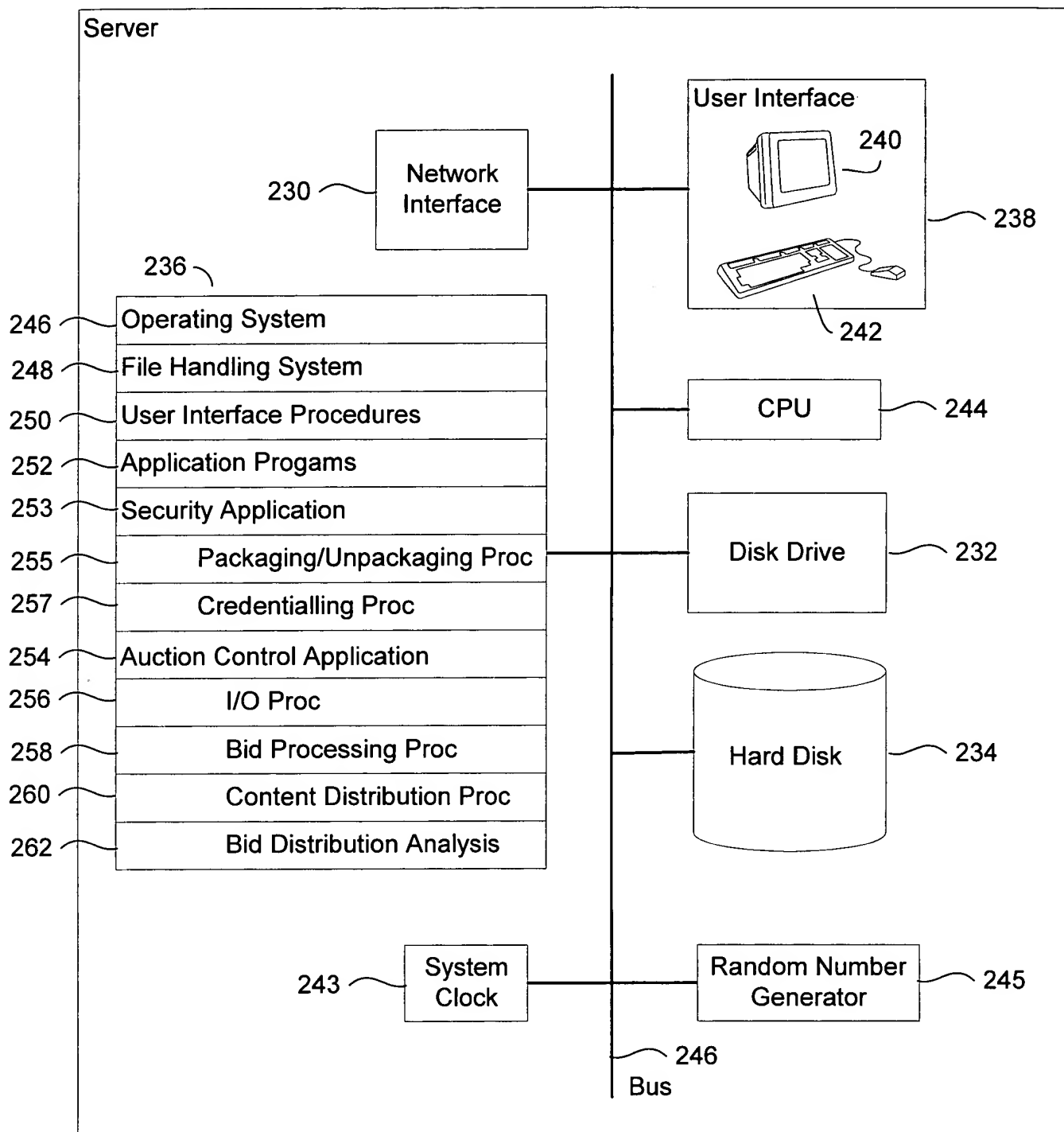


Fig. 2B

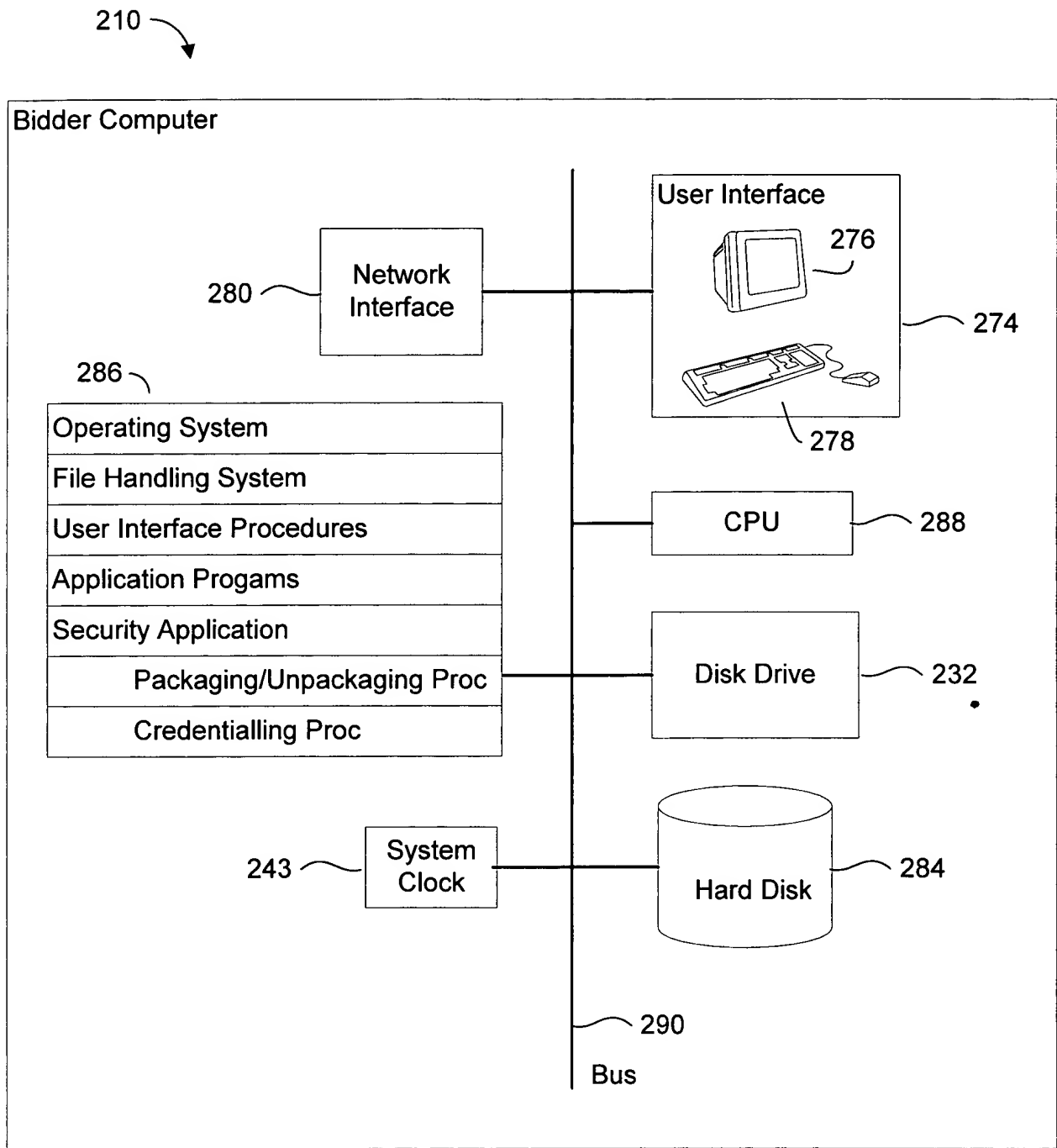


Fig. 2C

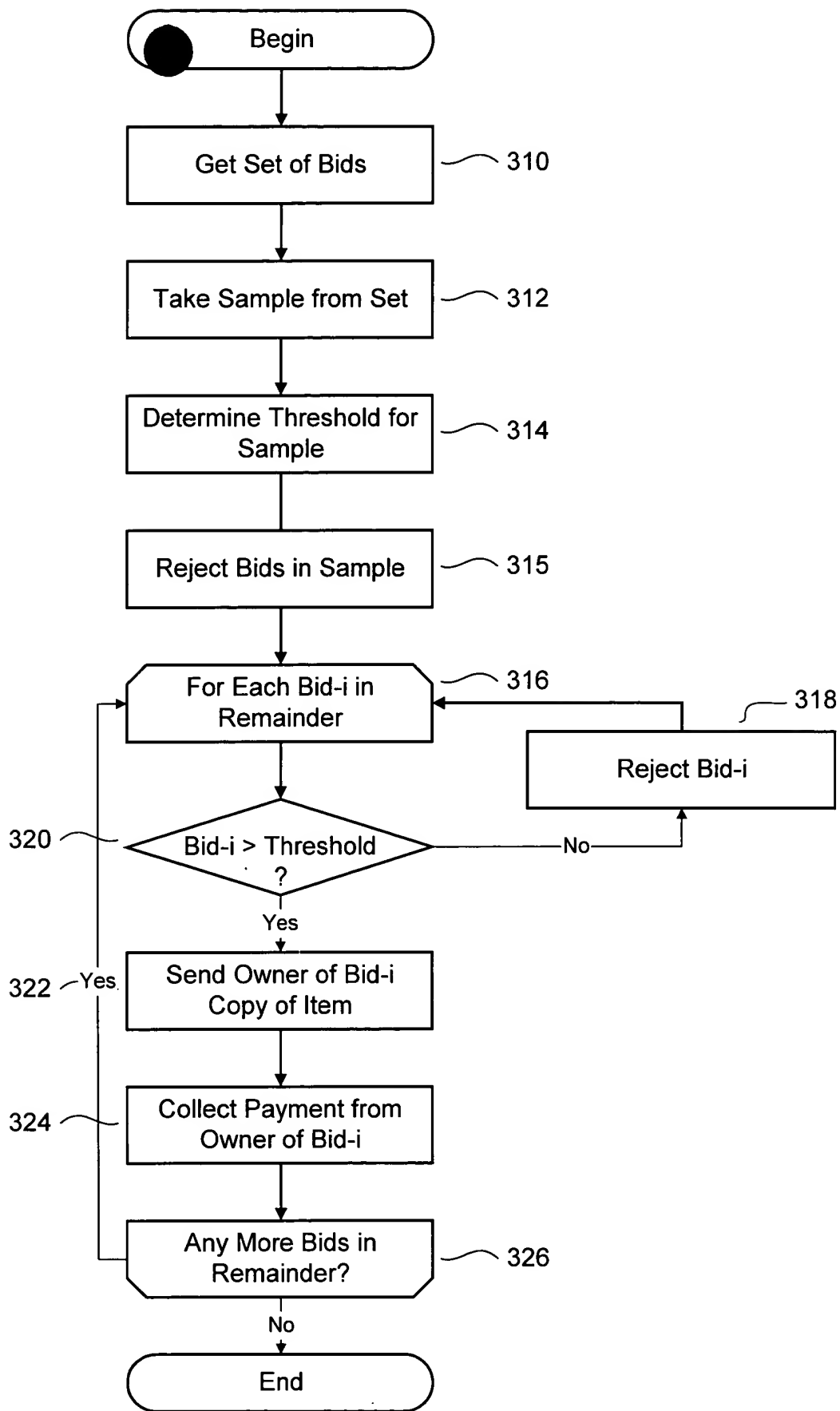
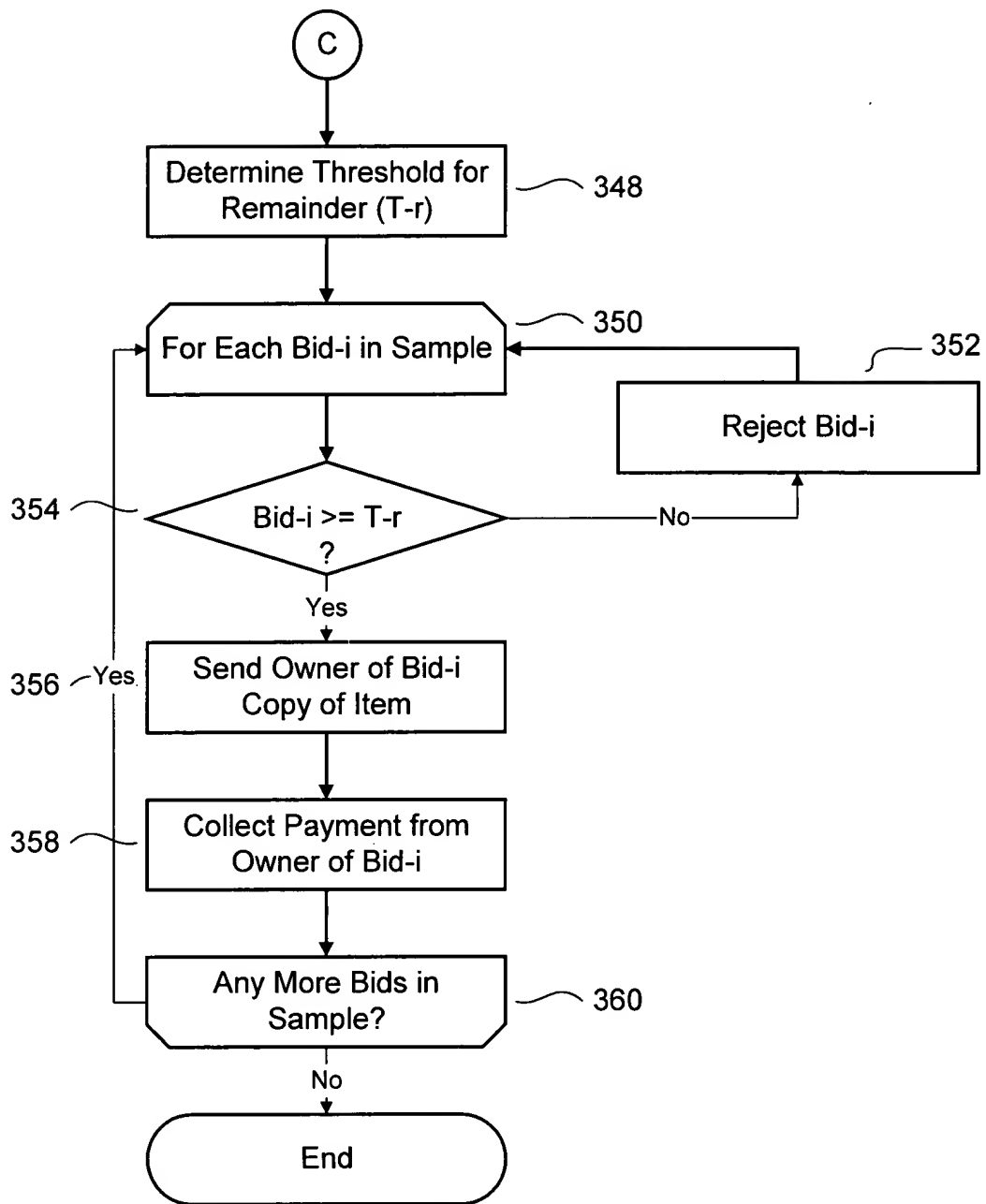


Fig. 3A

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graph TD
    Start((Begin)) --> 330[Get Set of Bids]
    330 --> 332[Take Sample from Set]
    332 --> 334[Determine Threshold for Sample T-s]
    334 --> 336[For Each Bid-i in Remainder]
    336 --> 340{Bid-i >= T-s?}
    340 -- Yes --> 342[Send Owner of Bid-i Copy of Item]
    342 --> 344[Collect Payment from Owner of Bid-i]
    344 --> 346[Any More Bids in Remainder?]
    346 -- No --> C((C))
    340 -- No --> 338[Reject Bid-i]
    338 --> 336
```

C

**00000000000000000000**



**Fig. 3C**

Bidd r	Bid
1	\$2
2	\$4
3	\$3
4	\$5
5	\$2
6	\$6
7	\$2
8	\$4
9	\$2
10	\$2
11	\$3
12	\$5
13	\$1
14	\$2
15	\$4
16	\$2
17	\$3
18	\$1
19	\$2
20	\$1

Fig. 4A

Threshold	Revenue of Shaded Sample	Revenue of Unshaded Sample
1	\$10	\$10
2	\$16	\$18
3	\$12	\$15
4	\$ 8	\$16
5	\$ 5	\$10
6	\$ 0	\$ 6

Fig. 4B



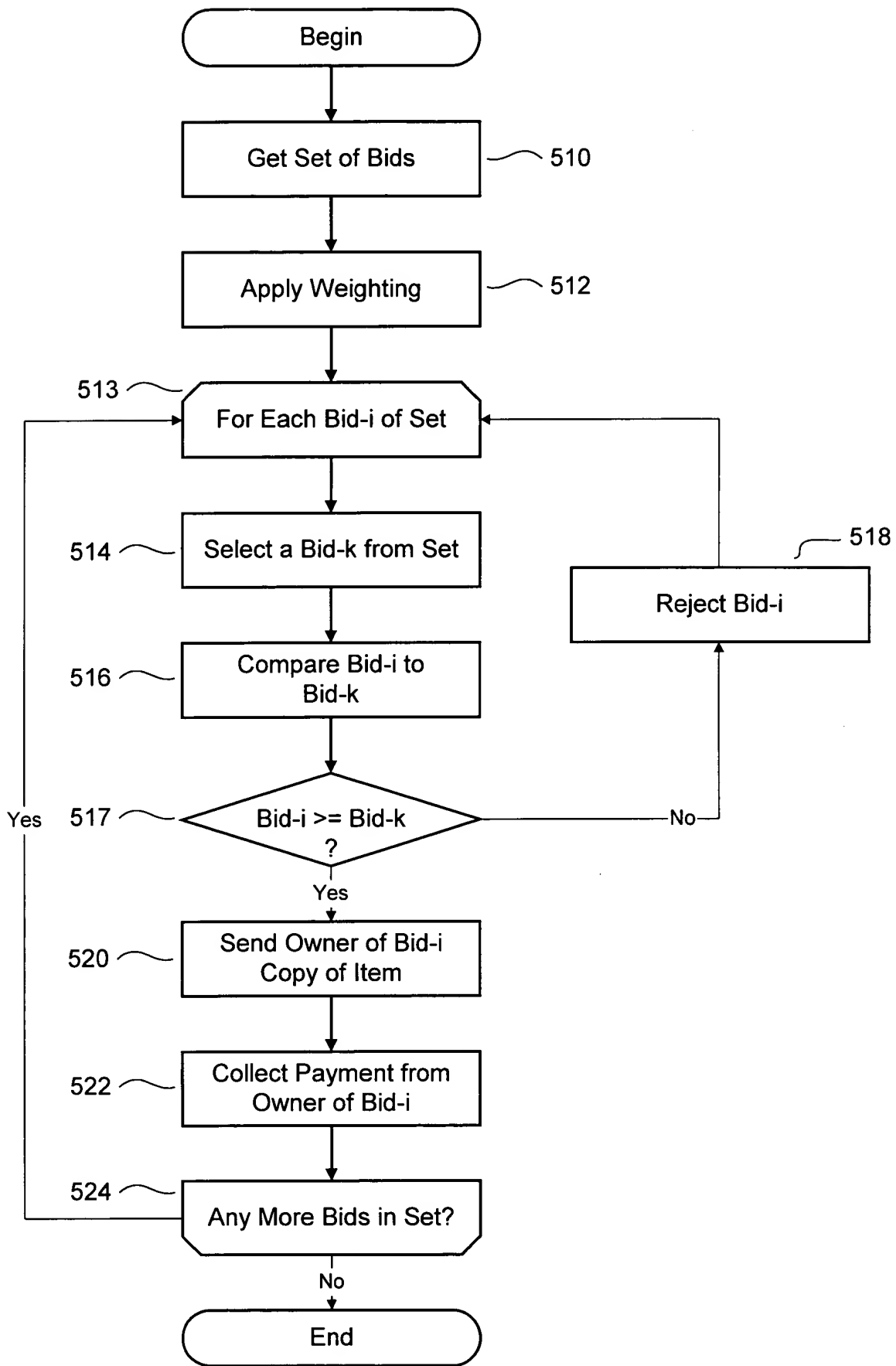


Fig. 5

Bidder	Bid	Weight
1	\$2	2
2	\$4	6
3	\$3	9
4	\$1	10
5	\$2	12
6	\$5	17
7	\$3	20
8	\$4	24
9	\$3	27
10	\$3	30

Fig. 6A

$b_i$		Random Number	$b_k$		Result
Bidder	Bid		Bidder	Bid (\$)	
1	\$2	20	7	\$3	Lose
2	\$4	25	9	\$3	Win
3	\$3	11	5	\$2	Win
4	\$1	8	3	\$3	Lose
5	\$2	3	2	\$4	Lose
6	\$5	24	8	\$4	Win
7	\$3	13	6	\$5	Lose
8	\$4	1	1	\$2	Win
9	\$3	30	10	\$3	Win
10	\$3	23	8	\$4	Lose

Fig. 6B

8-11-15

# Uniform Size Test

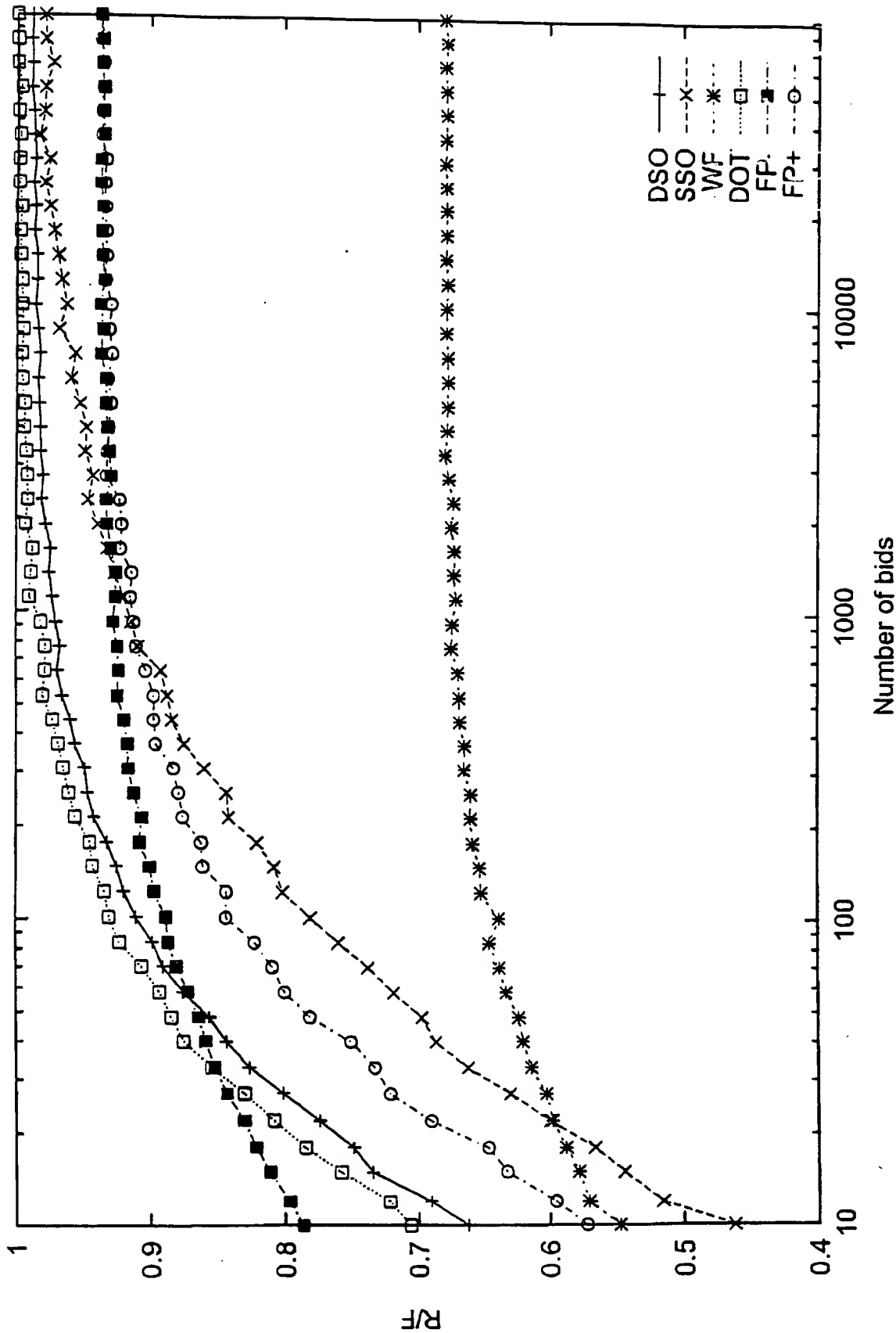


FIG. 7

Normal Size Test

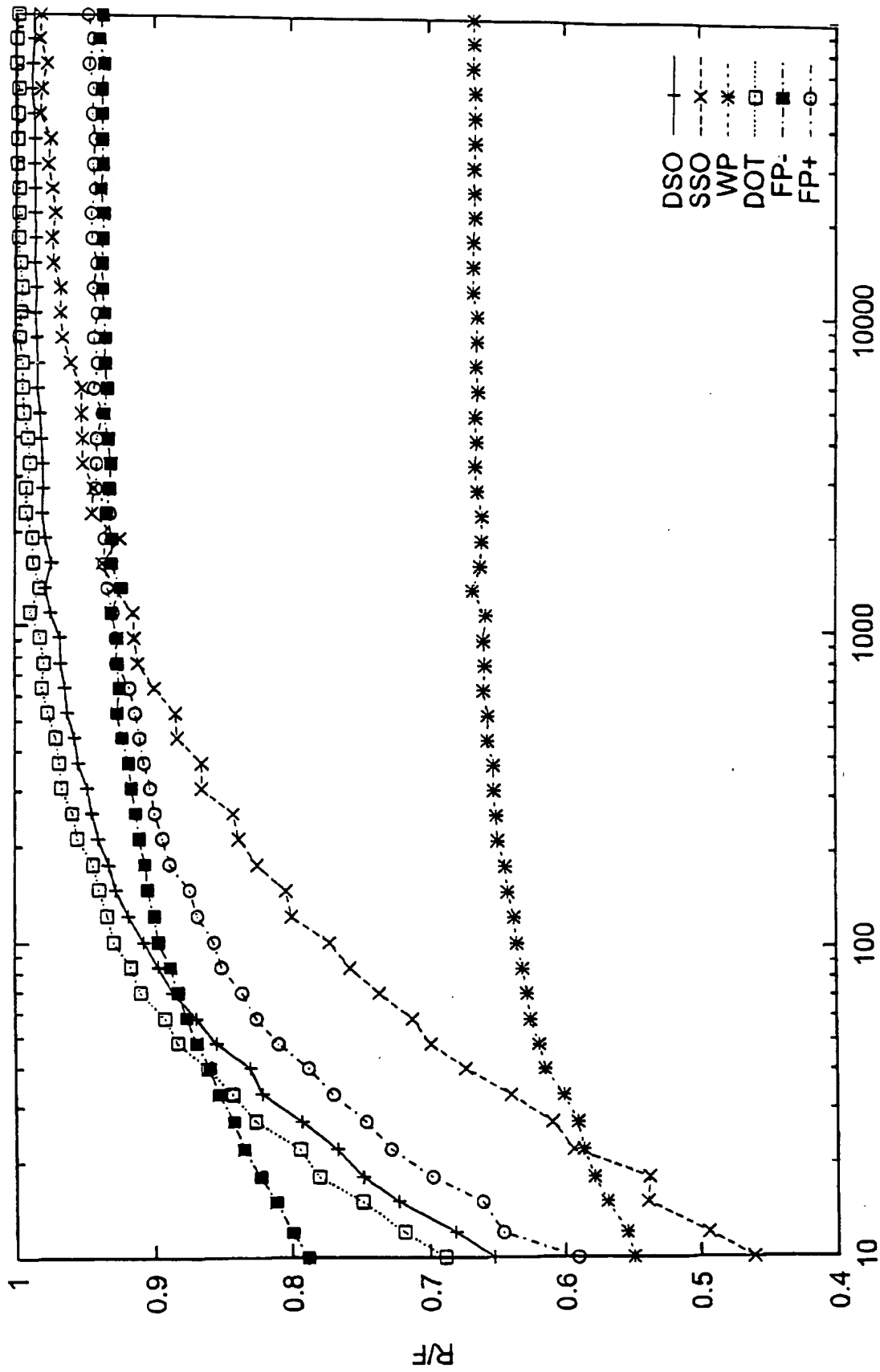


FIG. 8

Zipf Size Test

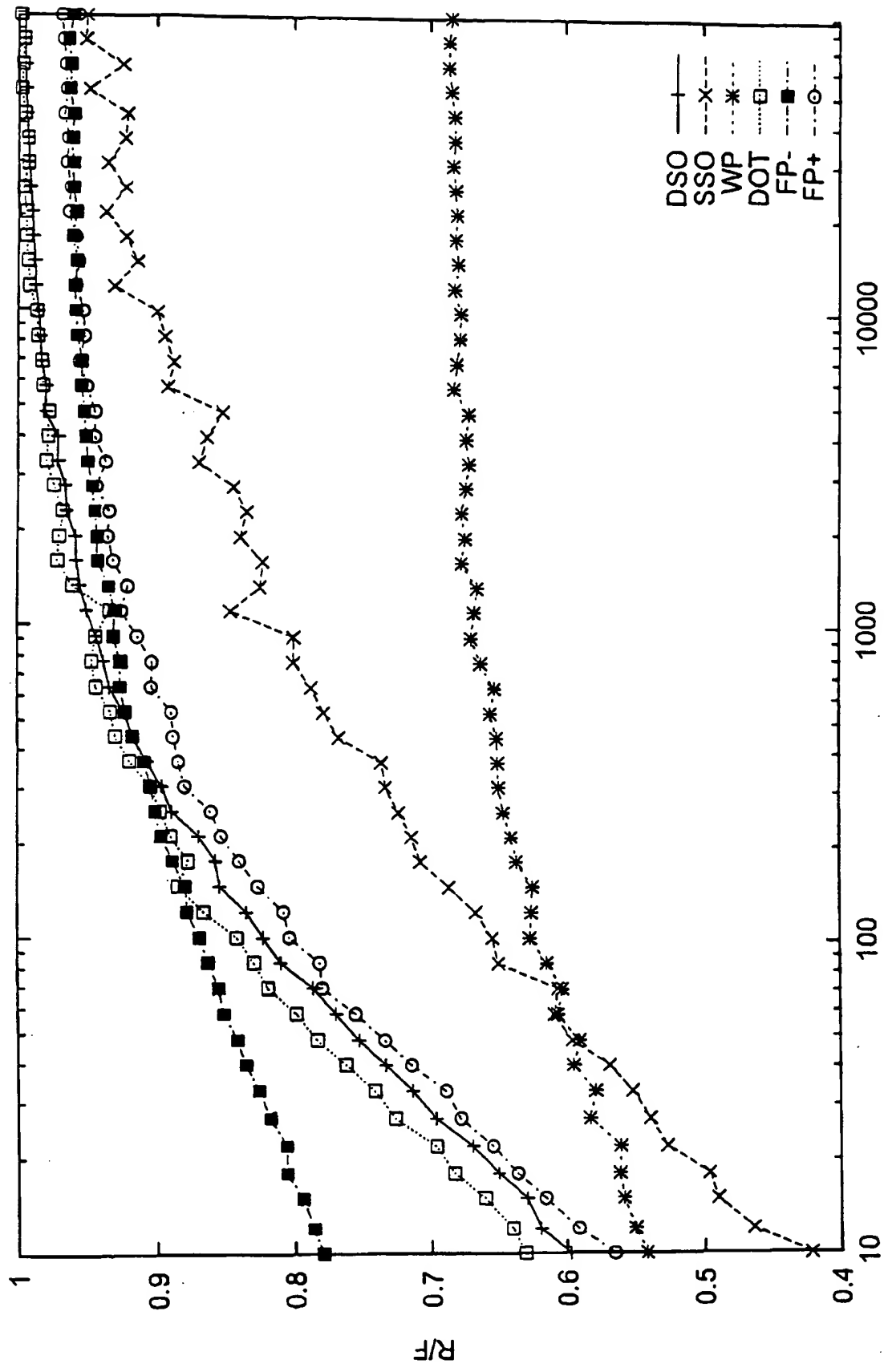


FIG. 9

# Equal-Revenue Size Test (alpha=10.0)

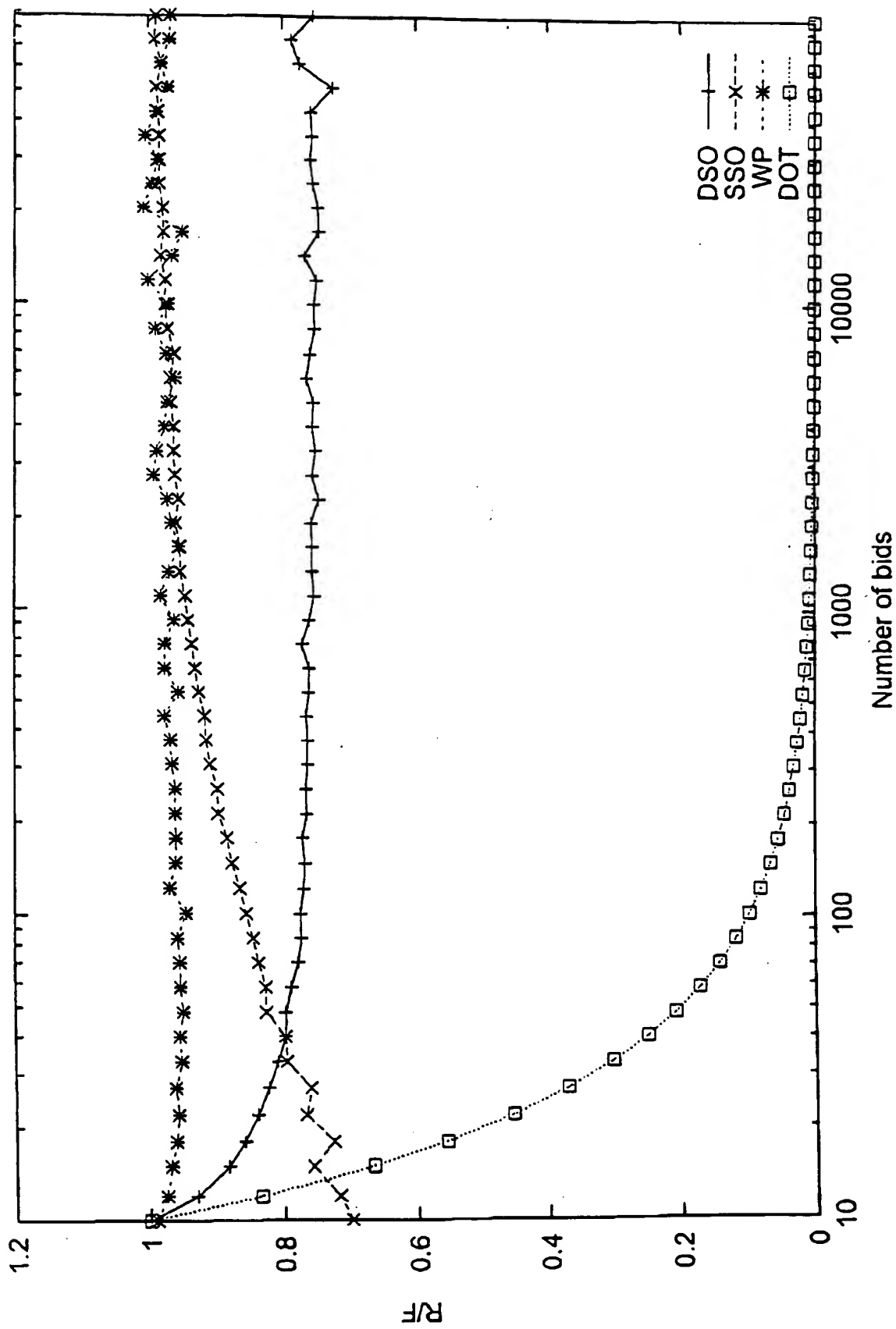


Fig. 10

DOT260" 55E99960

# Bipolar Ratio Test (n=100)

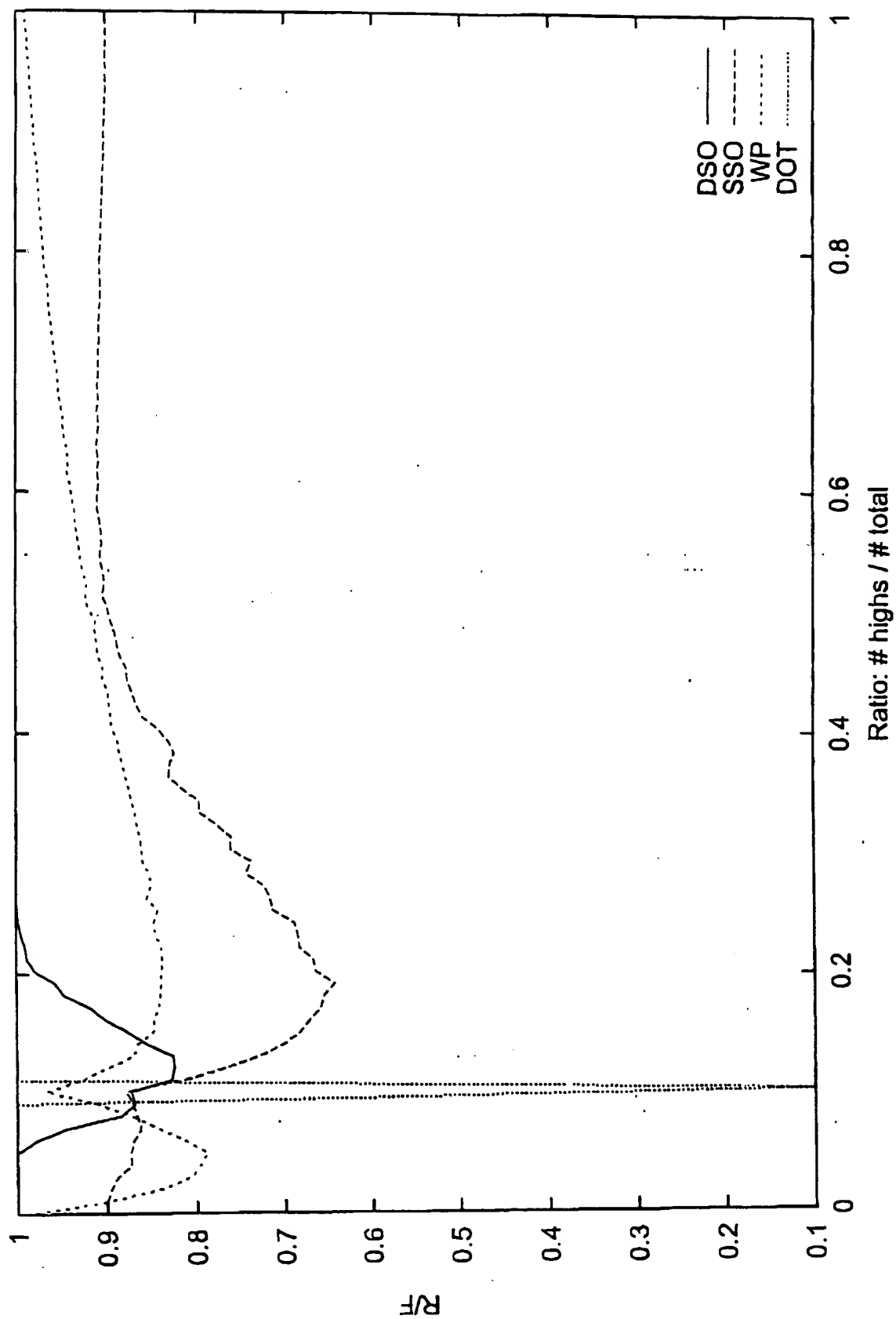


FIG. 11